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SEA LEVEL RISE IN MARLAND
Facts and Implications for USACE

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USACE Baltimore

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AGENDA

- **Facts and Figures – Sea Level Rise in Md and Chesapeake Bay**
- **Efforts by State of Maryland Efforts**
- **Relationship to USACE-Md Shoreline Erosion Study**
- **Policy Implications for USACE**

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Sea Level Rise in Md and the Bay

- **Rate of SLR double global average**
- **Land subsidence plus increases in global sea level**
- **By 2100, Md could see rise of 2-3 ft (Johnson, 2000)**

Land Vulnerable to Inundation - Md

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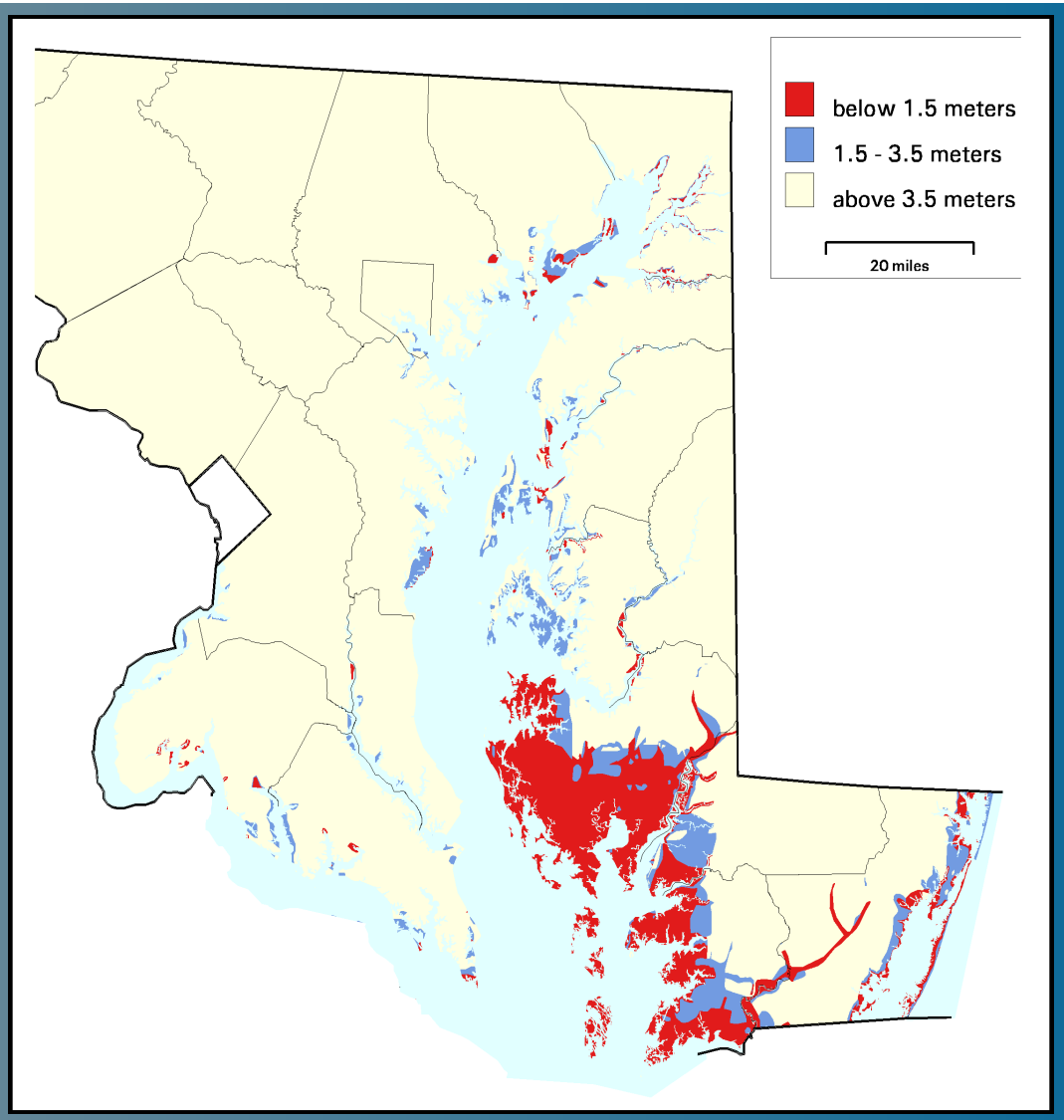
The areas in red roughly portray land that may be inundated at high tide if sea level rises 50 centimeters or more (Titus,2000).



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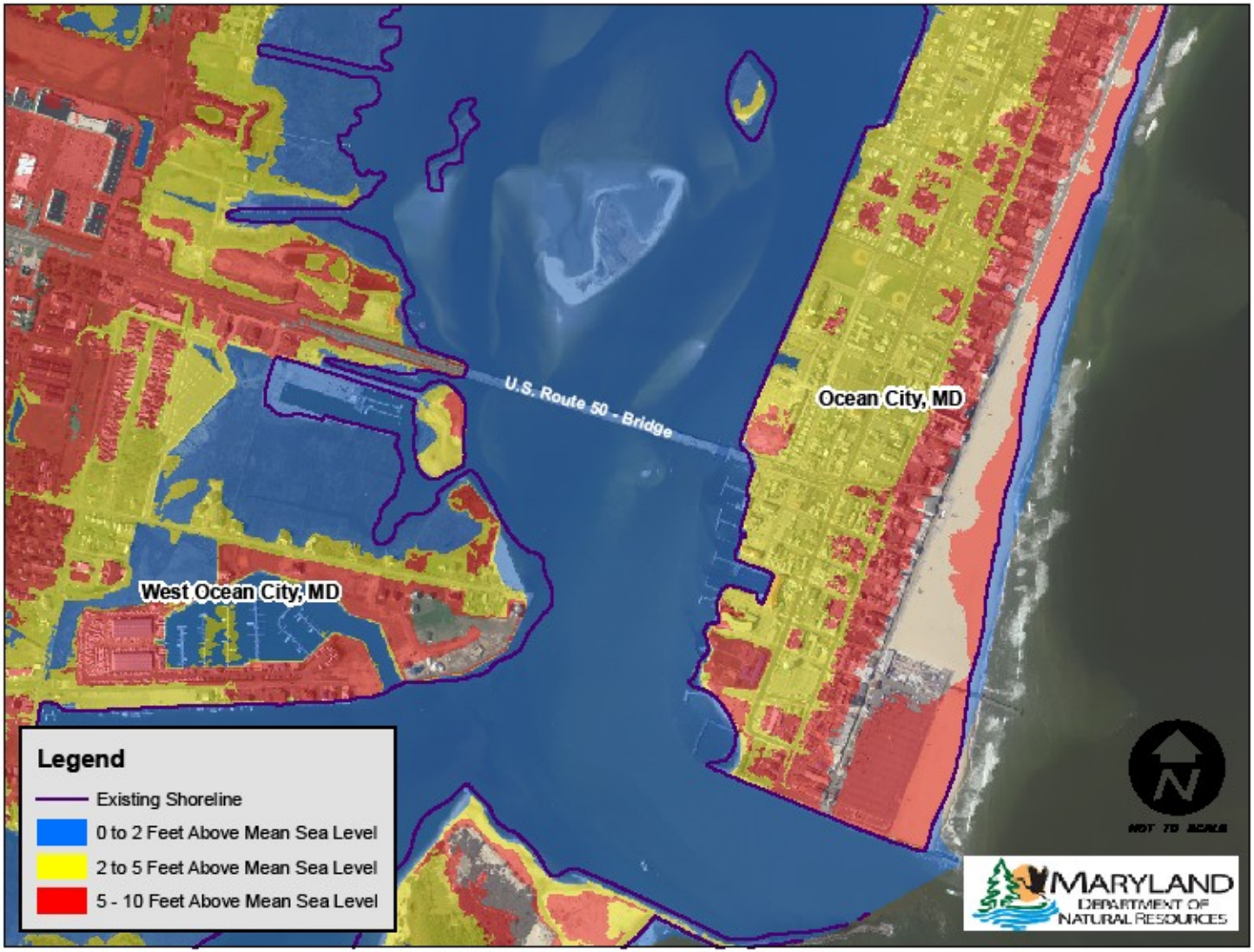
Land Vulnerable to Inundation

Ocean City, Md


U.S. Route 50 - Bridge
Ocean City, MD
West Ocean City, MD
Legend
Existing Shoreline
0 to 2 Feet Above Mean Sea Level
2 to 5 Feet Above Mean Sea Level
5 - 10 Feet Above Mean Sea Level
MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

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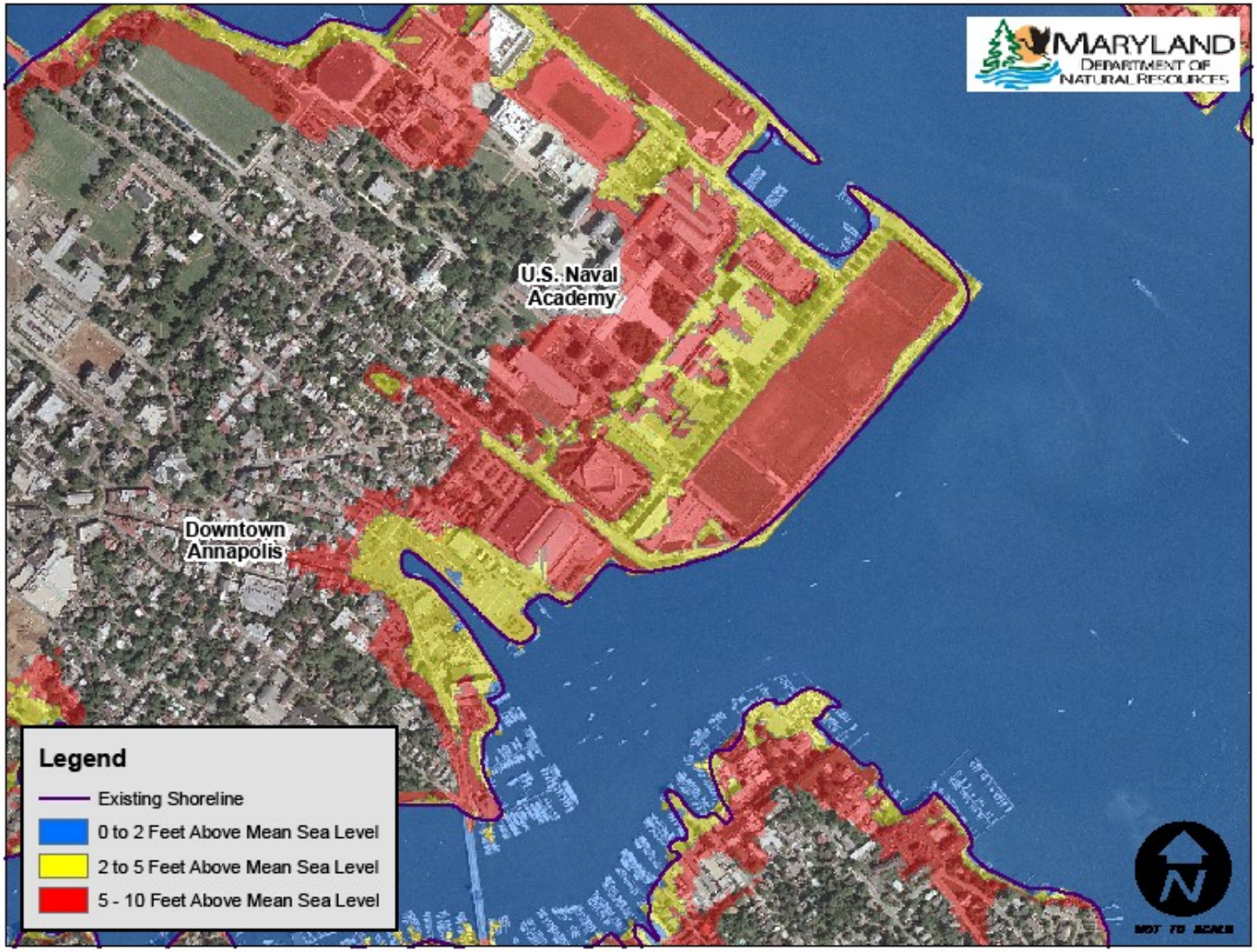
Land Vulnerable to Inundation

Annapolis, Maryland



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MARYLAND COMMISSION ON CLIMATE CHANGE

- **Develop a <u>Plan of Action</u>:**
  - Climate Change Impact Assessment
  - Greenhouse Gas and Carbon Footprint Reduction Strategy
  - Strategy for Reducing Maryland's Climate Change Vulnerability (Adaptation and Response)
- **Technical Working Groups**
- **June 08 Report**

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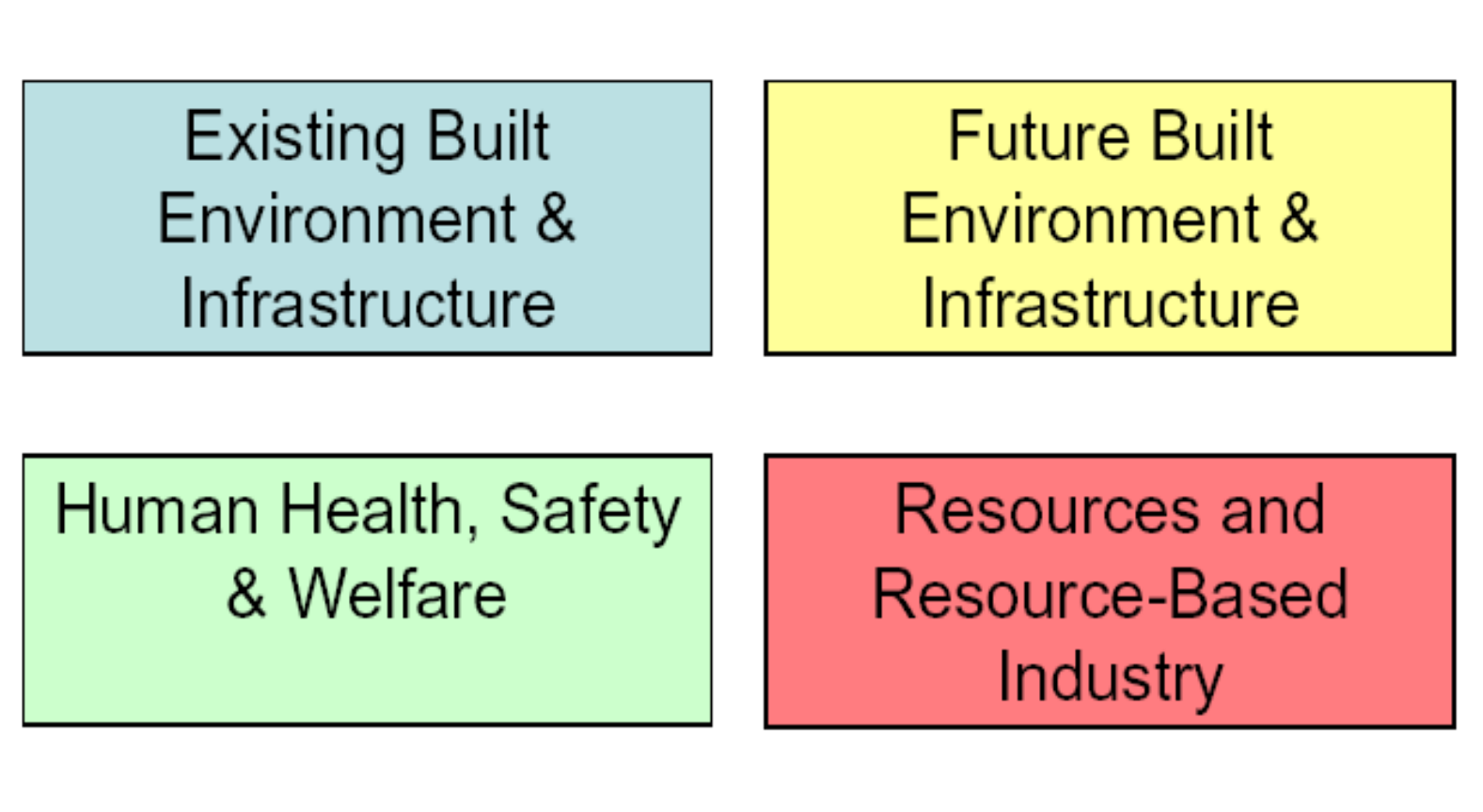
Adaptation and Response Technical Working Groups


Existing Built Environment & Infrastructure
Future Built Environment & Infrastructure
Human Health, Safety & Welfare
Resources and Resource-Based Industry

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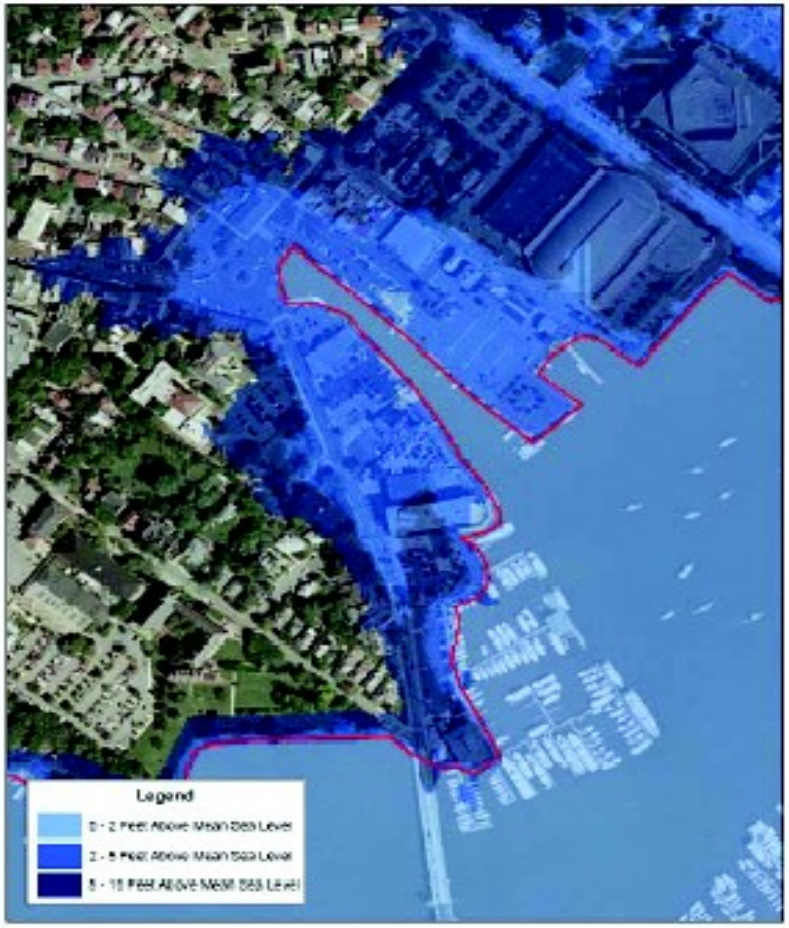
Existing Built Environment & Infrastructure

- Observation Systems for Changes in Coastal Zones
- Adaptation of Vulnerable Coastal Infrastructure
- Building Code Revisions & Infrastructure Design Standards
- Disclosure



Future Built Environment & Infrastructure

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- Integrated Planning for SLR, Coastal Storms and Coastal Erosion
- State Agency Integration and Reporting on CCC Findings
- Climate Change and Insurance Advisory Committee
- Integrated GIS: Mapping, Modeling and Monitoring
- Economic Development Initiative

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Resources and Resource-based Industry

- New Criteria for Priority Protection Areas
- Forest and Wetland Protection
- Sustainable Shorelines and Buffer Area Management Practices
- Resource-Based Industry Economic Initiative

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USACE Chesapeake Bay Shoreline Erosion Master Plan

- **Sponsor: State of Md Dep't of Nat Resources**
- **First Phase Master Plan followed by feasibility studies of specific sites**
- **Master Plan Components:**
  - **Coastal erosion projection (50 year)**
  - **Vulnerable areas (ecosystem/structures) – identify, map, select priorities**
  - **Sea level rise mapping**
  - **Sea, lake, and overland surge from hurricanes (SLOSH) mapping**

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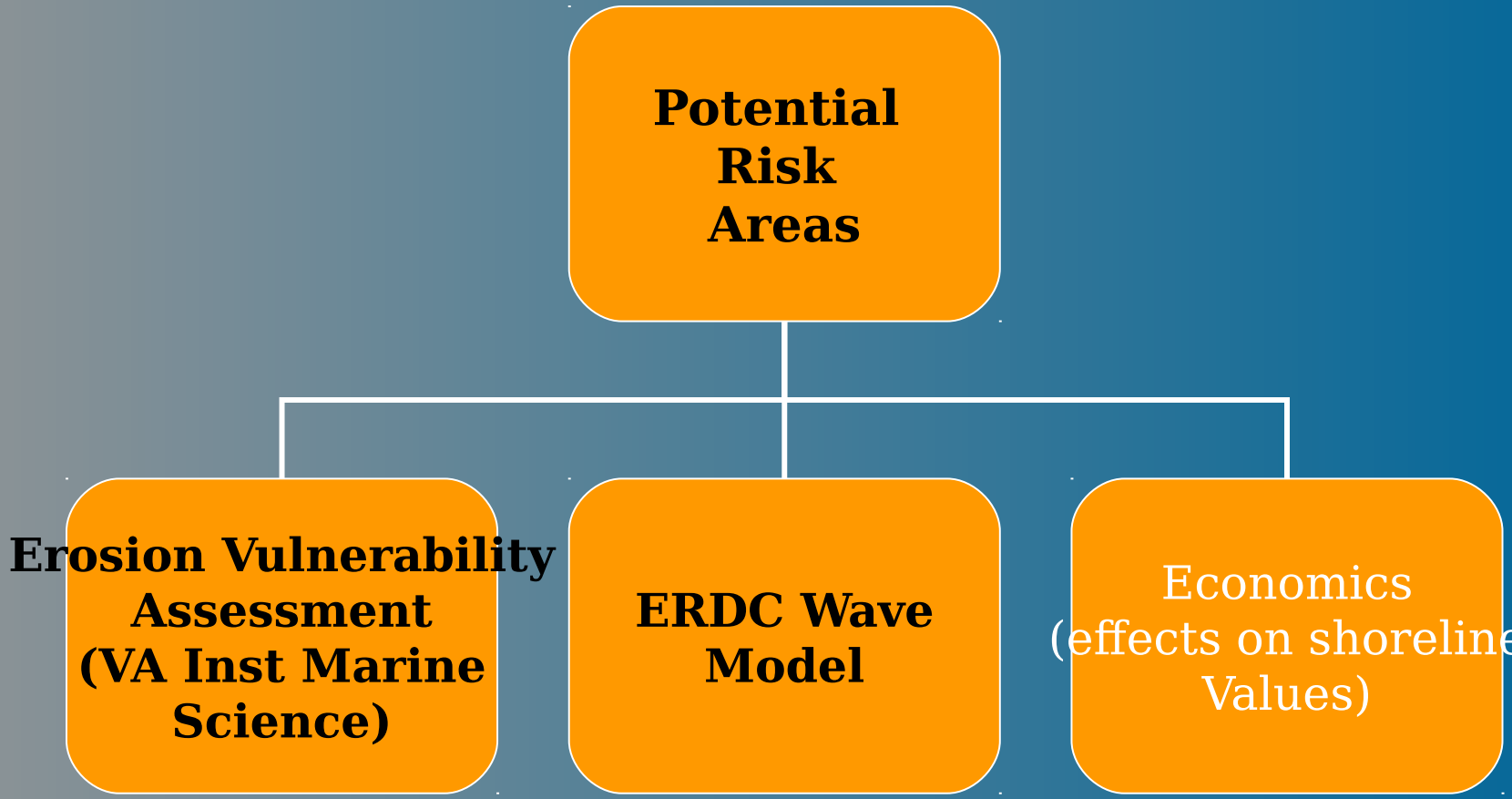
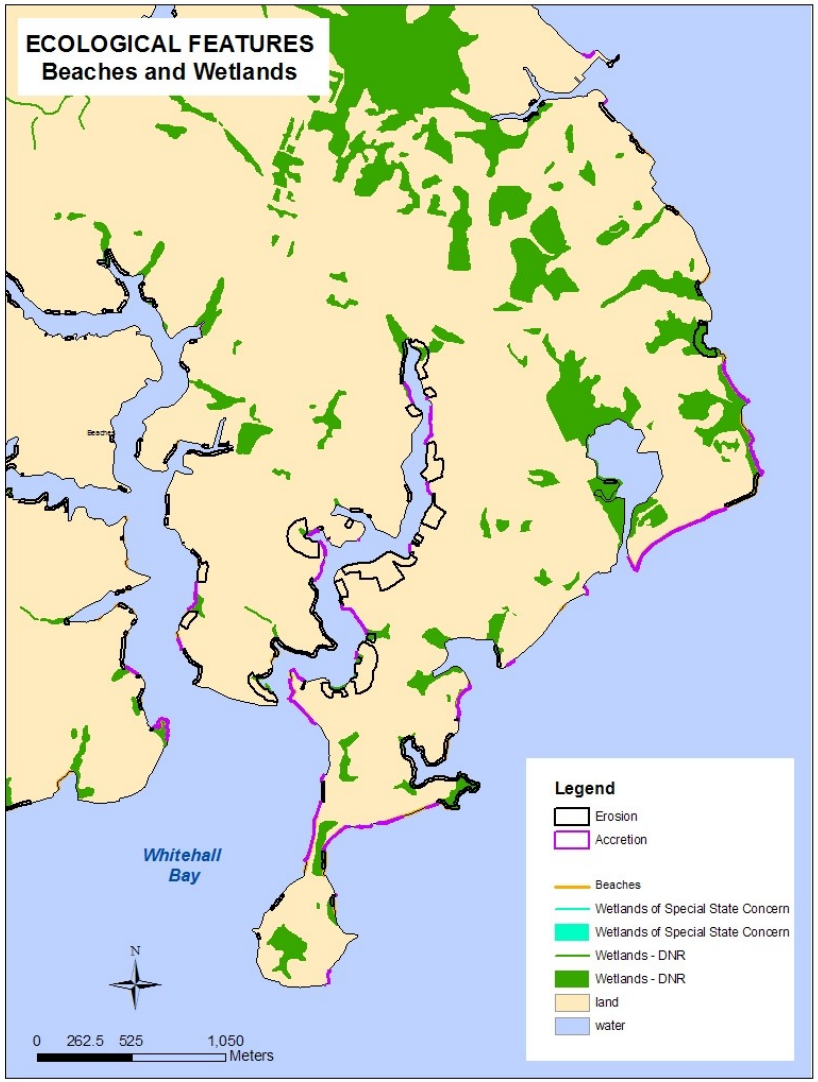
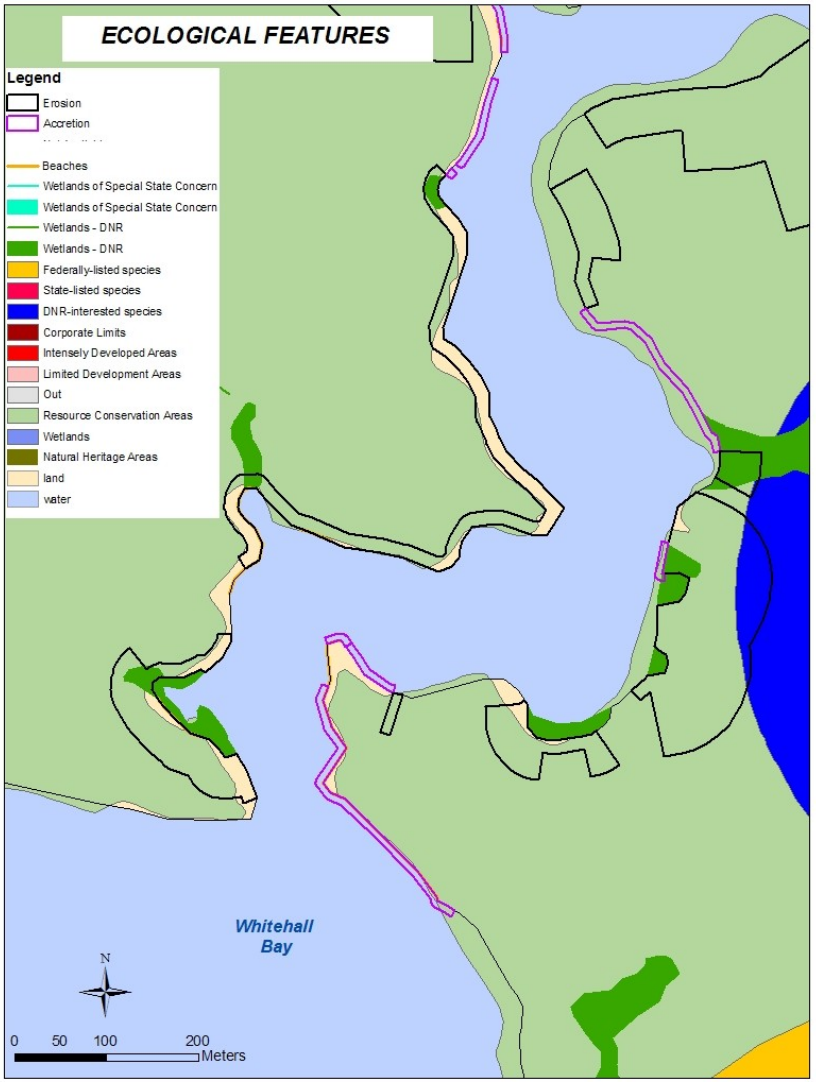
Coastal Erosion Component


Potential Risk Areas
Erosion Vulnerability Assessment (VA Inst Marine Science)
ERDC Wave Model
Economics (effects on shoreline Values)

Erosion Vulnerability
Ecological Risk Areas





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Sea Level Rise Projections (Mapping)

- **For Master Planning effort, will be provided to State and Local governments to assist them with coastal planning and management**

- **SLR projections will be useful in feasibility phase to address site-specific vulnerable areas… application will depend on evolving USACE policies with respect to SLR**

USACE National Planning & Policy Needs in view of SLR

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- **SLR and storm surge will potentially impact**
  - design and performance of coastal protection structures
  - shoreline erosion rates
  - sensitive coastal ecosystems
  - sedimentation rates in federal navigation channels
  - hurricane preparedness and hazard mitigation planning
- **Plan selections may be sensitive to SLR; adaptive management increasingly important in coastal zone**
- **Regional sediment management will become increasingly important with increases in SLR**
- **Future revisions to Planning policies must anticipate, and be informed by, emerging science and engineering on SLR**

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CENAB-PL Points of Contact

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